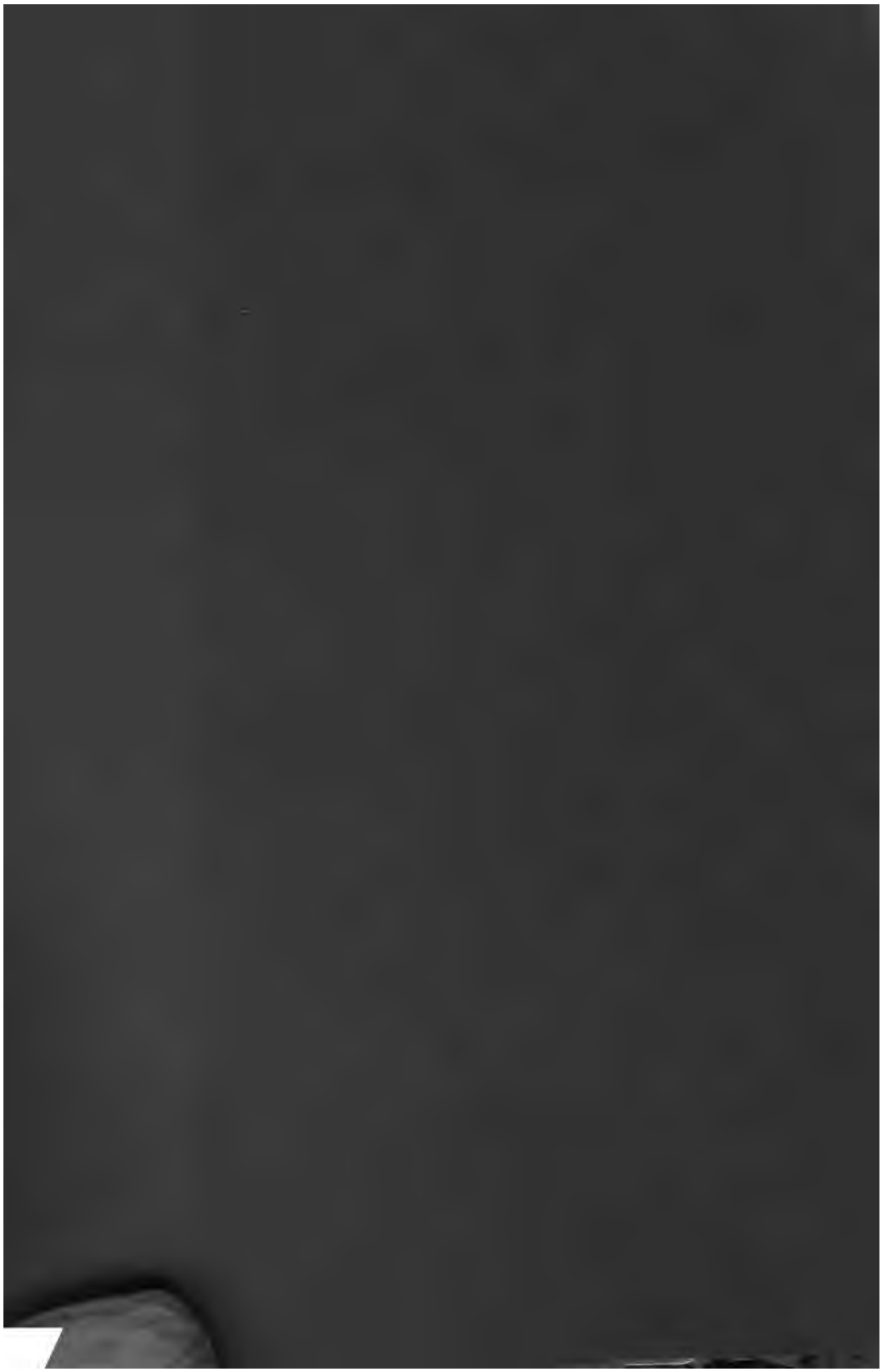


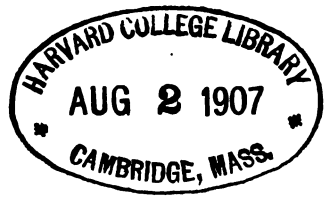
The Library and the Business Man

By

G. W. Lee

For the 29th Annual Meeting
of the American Library Association
at Asheville, N. C. May, 1907

Revised and completed
July, 1907



BOSTON
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1907

In giving publicity to our library and its working methods, we aim to show what library work can mean to business houses. It is probably true that libraries as a whole are better equipped with statistical and technical literature than is justified by the demand; and we hope that a suggestion of how useful our own library is to us and how widely we appeal to resources without, may tend to promote a more general practice of looking to libraries as business aids. The recognition of their commercial possibilities would, we think, meet with a hearty response from the libraries themselves, and so we, among others, would thus benefit from the availability of larger resources for obtaining answers to questions that are beyond the scope of the necessarily limited equipment of a private business library.

STONE & WEBSTER,
84 State St.,
Boston, Mass.

July 13, 1907.

CONTENTS

The Library and the Business Man

By

G. W. Lee

FOR THE ASHEVILLE MEETING OF THE
AMERICAN LIBRARY ASSOCIATION
MAY, 1907

As librarian for Stone & Webster, the author bases this paper on the work and needs of their library, treating the subject under the following divisions:

1 Scope of the business
2 Demands upon the library
3 Sources of information
4 Working methods, filing systems, etc.
5 Improvements and limitations
6 Some unsolved problems
7 Information bureaus
8 Esperanto
9 Miscellany

1 SCOPE OF THE BUSINESS

The Stone & Webster organization, consisting of the firm, its Engineering Corporation and their departmental offices, has the general control, including operation, engineering and financing, of some thirty public service corporations in various parts

of the country, from Maine to Texas, from Puget Sound to Porto Rico, with also one in Cape Breton.* Besides these, which have to do with gas and electric lighting, electric railway and power transmission, are three other industrial enterprises which would add electro-chemical and textile manufacturing interests to the list.

The Library is at the service of them all, though particularly for the use of the headquarters in Boston. The Boston Office, so far as the Library is concerned, includes also the Stone & Webster Engineering Corporation, which was organized in the summer of 1906 for a general engineering and contracting business, in addition to what is usually associated with electrical engineering work. About two hundred persons thereby have the Library within immediate reach, the use of which is divided perhaps equally between Stone & Webster proper and the Engineering Corporation.

2 *DEMANDS UPON THE LIBRARY*

It will be impracticable to give anything like a complete list of the questions and requests that come for immediate attention or for extended research. But a classified selection, with comment thereon (from a collection mostly within two years), should well serve to indicate the scope of information which the Library endeavors to have ready access to.

2a *Engineering questions and a few others indicating a necessity for the Library*

The following are fair samples of what one would expect to find on our record of demands:

(1) *Underground conduit systems, more particularly the cost*

*A nearly complete list of the properties is given on the letter head (9b9).

(2) *Periodical references on the grounding of the secondary*
(3) *Write-ups on power plants of Kansas City and Minneapolis*
(4) *Central station economies by Goldsborough and Fansler at the Niagara meeting of the A. I. E. E., July,* 1903
(5) *Papers that have appeared from time to time in regard to power transmission in the A. I. E. E. proceedings*
(6) *Everything on depreciation and maintenance in railway and lighting*
(7) *Relative costs for electric and gas lighting*
(8) *Data on the central station load factor*
(9) *References on getting shocked through electric conductivity of fire streams*
(10) *Methods of reducing accident accounts in railways*
(11) *General works on interurban railway construction*
(12) *Methods of estimating population served by street railways*
(13) *A few references on car barns and repair shops*
(14) *Boston elevated car dimensions*
(15) *Use of "T" rails in paved streets*
(16) *An article on the thermit process of rail welding*
(17) *The use of peat gas*
(18) *Article by Elihu Thomson on alcohol as fuel*
(19) *Barometric condensers*
(20) *The best book we have on boilers and stokers*
(21) *Vacuum system vs direct steam heating*
(22) *Measurement of water flow by inserting small pipes*

How are such questions answered? The answers to these particular ones were, for the most part, found through the indexes to the technical journals; though the requests for works on railway construction, for methods of estimating population, for a book on boilers and stokers, and for information on the measurement of water flow by the insertion of small pipes, numbers (11), (12), (20) and (22) respectively, were answered in other ways. Gumption, of course, plays a large part in reference work, as noted in 2p, below.

2b Names and addresses

Questions of this class frequently come up and, still more than the preceding, call for experience, besides familiarity with a number of reference books. They are such as might arise in almost any office, viz:

(1) *Name of Secretary of State of Texas*
(2) *Vice-President of Milwaukee, St. Paul & Sault Ste. Marie R. R.*
(3) *Initials of Mr. Blackman, president of Rollins College*
(4) *How to spell the name of an automobile resembling "Michelon"*
(5) *Is Charles S. Sperry's title "Captain Sperry?"*
(6) *Address of Miss Shedlock, reader*
(7) *Addresses of engineering societies*
(8) *How to address Immigration Office, Washington*
(9) *Where is the Practical Engineer published?*
(10) *Addresses of the Remington and the Lessen Refrigerating Companies*

Almanacs, newspaper directories, Who's Who, the advertising pages of trade journals, etc., are obviously possible sources of information for some of the above questions.

2c *Spelling, rhetoric, etc.*

This group, like the one immediately preceding, includes the sort of questions people in general are likely to want answered, while savoring also of the personal use of the Library. For the latter use see also group o. The following are typical:

(1) *Is* s *always added for possessive singular after an apostrophe when a word ends in* s, *i. e., is* Davis' *as correct as* Davis's?
(2) *Authority for spelling to-day and to-morrow without a hyphen*
(3) *Authority for the spelling* Phenix, *Ala.*
(4) *Is* basket-ball *one word or two words?*
(5) *The abbreviation for* mid-night
(6) *List of proofreaders' corrections*
(7) *Is the expression* obtains with *some of our companies correct as meaning* pertains to?
(8) *Should we say none* is *or none* are?
(9) *The correct uses of* shall *and* will
(10) *Is it correct to say "We should like to have your views as to* whom *you think should present the bill"?*
(11) *The salutation of a letter to the President of the United States*
(12) *The salutation of a letter to the Woman's Educational Industrial Union*

The record of questions of usage in English that have been put to the Library is very incomplete; but there has been many a failure to find rule or authority for much that one would expect to be settled by our ordinary dictionaries, encyclopedias or rhetorics. Particularly disappointing is it not to find cut-and-dried rules for addressing persons in public office. In order that

many of the vexed questions of business English might be rounded up and answered, even by a man of straw (who might provoke the world of unwritten authority and good taste to commit itself in black and white), I asked a professor of English at Harvard College to write me a letter, to the effect that it would be a good thing to compile a book of "what we don't find in the rhetorics," and I quote from his letter (dated March 7, 1907), as follows:

> "I think your idea of getting together your notes on what text-books do not tell (and what men in business need to know) in regard to correspondence and practical rhetoric is so interesting as to be worth following up. Obviously, all depends on the amount of material and the judgment of the editor."

Who will be the editor? Who has the time to spare? Many may object that just such a book already exists. If so, I hope to see it soon.

2d Statistical

Less obviously, to the uninitiated, the following list seems to bear upon the interests of street railway and lighting companies, viz:

(1) *Wealth of the United States and of the World*
(2) *Cost of living in Mass. for a number of years back, also an average for the whole United States*
(3) *Weights of different kinds of vegetables per bushel*
(4) *Altitudes of various cities*
(5) *Average temperatures of various U. S. cities*
(6) *Data on Key West*
(7) *Lumber shipments from Florida ports in* 1904
(8) *Is Savannah the greatest naval stores port in the world?*

(9) *Exports from Tacoma, Portland and San Francisco in* 1904
(10) *Article in World's Work on the Gulf ports and Mississippi Valley interior trade*
(11) *Write-ups in the World's Work some months ago on Seattle, Tacoma and Bellingham*
(12) *Destruction of first steel building in New York*

What has the cost of living in Massachusetts to do with the business of Stone & Webster? the weights of vegetables per bushel? the altitudes or temperatures of cities? the destruction of the first steel building? I should hardly venture to answer, but I suspect that none were asked for purely personal reasons. Do they not suggest that all human knowledge is inter-dependent and that the library fraternity may well hope to be useful to every man in every walk of life? It is such questions as these that stimulate one to preach a crusade for inter-library, inter-state, inter-national reference work, a clearing-house system for all human demands. But the people who ask these statistical questions are hardly interested in such Utopian ideas. They want their answers, and the frequency of such questions and the insistent demands to have them answered or to be put in the way of obtaining the answers, leaves one little time to work upon the construction of a royal road to anticipating all answers for all time to come. This will be referred to again in considering section 7, Information Bureaus.

2e Costs and finance in general

Somewhat akin to the preceding are several of the following nine:

(1) *Discount on Cyclopedia of Applied Electricity for cash payment*

(2) *Standard works on financial matters, currency, banking systems, etc.*
(3) *Should coal mine earnings be charged as railroad earnings where a railroad owns the mine?*
(4) *Rates of interest of Interborough Railway notes*
(5) *Compound interest tables for annuity calculation*
(6) *The financial side of the Chicago traction situation*
(7) *Bank clearings for Seattle for* 1905
(8) *Assessed valuation of Seattle*
(9) *Comparative statements of the call and time money rates for the last six months of* 1906, *also the combined reserves of the clearing-house banks of Montreal*

Finance is perhaps the common factor of business life, and a certain routine of reference books and experience enables one to put the questioner readily in touch with the answers to many questions of this kind, though one or two of the above proved to be puzzlers.

2f Almanacs, encyclopedias, guides, etc.

The following are cited, not as being related to each other, but as typical of what one finds answered in some of our most usual reference books:

(1) *When does next session of Congress begin?*
(2) *Salary of U. S. Cabinet officers*
(3) *Salutes of Naval Officers*
(4) *Difference in standard time between Boston and Seattle*
(5) *Value of a Swedish crown*
(6) *Tax rates of different cities*
(7) *Equation for the parabola*

(8) *List of railroads having main office in Houston, Texas*

(9) *Map of railways and boat lines along the St. Lawrence River*

To help towards a ready answer to such questions as the first six above, we have used the expression, "When in doubt consult the World Almanac." (Perhaps it would be more just to add to the motto, "or any other almanac.")

2g Unexpectedly difficult or unsuccessfully answered

In this class comes information that one is assumed to know or readily ascertain as an every day matter in his calling. Again and again I have found that an apparently easy question has proved hopeless to answer. Look for the date of opening of the first interurban and see if you can readily find it. So also try to find in the ordinary rhetorics the proper way to address a woman's association: whether "Dear Madames," "Dear Mesdames," "Dear Sirs," "Ladies," or what not. In the actual case of this kind that came up the answer was obtained by telephoning the association in question and thus getting the answer from headquarters, "Dear Mesdames." Perhaps ordinarily we should address only the secretary or some other official, thus avoiding the difficulty.

Quite as important as a record of the successfully answered questions and possibly more important, seems to me to be the record of failure—a goodly list were it complete. The following, which may have been answered since the writer first considered them as unanswered, are to the point:

(1) *Memberships of Mass. Labor Unions*

(2) *Potomac Electric Power Company write-up*

(3) *Date of opening Columbus Power Company for business*

(4) *Data on Madawaska River, Canada*
(5) *Earliest electrical interurban railway (not high speed)*
(6) *Electric line passenger agreement*
(7) *Injurious effect of coke in locomotives*
(8) *References on tub transformers*
(9) *Prices charged for Niagara power*
(10) *Engine and power house stairs, aside from circular stairs*
(11) *Advertisement on sale of El Paso preferred stock in Chicago Record-Herald*
(12) *Is Alamos (Mex.) in the district called Alamos?*
(13) *Methods of recording applications for work*

It was a surprise not to find answers readily to several of the above; but it is only fair to say that lack of time and also the unimportance of getting answers, are often factors, so that in some instances the question was dropped before any serious reference work was undertaken.

2h System and co-operation

(As in the case of *2f* this and the two following groups are selected with reference to sources of information.)

The inter-reference of office departments, further referred to in *3e*, is of vital importance in the solution of many questions. The following were thus conjointly answered; and presumably the work of the Library in these instances was discharged in a few words, at a saving of much time:

(1) *Laws and ordinances governing Seattle elections (Ref. to Corporation Dept.)*
(2) *Information on galvanizing (Ref. to Statistical Dept. and to Mass. Institute of Technology)*

(3) *Shall we buy the earlier volumes of transactions of Am. Institute of Mechanical Engrs.? (Ref. to Eng'g Dept.)*

(4) *Capitalization of Turners Falls Pr. Co. (Ref. to Securities Dept.)*

(5) *Cost of electric railway construction (Ref. to Statistical Dept.)*

(6) *Trade catalogues or bulletins on file giving details of alternating current elevator equipment (Ref. to Purchasing Dept.)*

More questions are thus referred than the record shows, while of course the inter-working of all parts of the organization is something to be encouraged. Significant is the following extract from an address at a recent dinner of members of the office:

"One of the best known Americans today is our fellow-citizen of Boston, Edward Everett Hale. He has certain phrases that mean much, which he uses over and over again. They are the keynote of one of the most useful lives that has ever been lived. The principal phrases are, perhaps, 'Lend a hand' and 'Together.' In that way—together—an organization can accomplish more than in any other way, and we are here tonight to emphasize that word.

* * * * * * * * * * * * * * *

"Each one of you fills his own niche, but there is a niche you can fill higher up which awaits your ability. Esprit de corps, that is at the bottom of it—'each for all and all for each.'"

2i Libraries, clubs, societies, public depts., etc.

The following twelve questions were answered, successfully or otherwise, largely by an appeal to resources without the office, sometimes merely by telephoning, sometimes by a visit to the Public or other library, club, etc.:

(1) *Book on hydraulic accumulators (Books from public Library)*

(2) *Description of patent granted to W. N. Patten and others on leather machine about four years ago (Ref. found at Public Library)*

(3) *Hermann's map of Oregon (Not found in office or in Public Library)*

(4) *Growth of region near Philipsburg, Pa., through which Center and Clearfield Railway runs (Letters to local library and newspapers without satisfaction)*

(5) *Earnings and expenses of some water plants (Library of Boston Society of Civil Engrs.)*

(6) *Putting out fires started in coal by spontaneous combustion (Data in Insurance Library)*

(7) *Secretary of Merchants Club, Chicago (Telephoned Boston Chamber of Commerce)*

(8) *Who operates the Rocky Point Park (Telephoned a summer resort agency)*

(9) *Typical agreements or regulations for carrying postmen, etc., free on street cars. (Telephoned Railroad Commissioners)*

(10) *Name of steamer sailing from Hong Kong to India about Feb. 27. (Telephoned Chamber of Commerce and then agent of P. & O. S. S. Co.)*

(11) *Corroboration by government of Fanning's report condemning Great Falls Water Power scheme (Consulted Social Law Library)*

(12) *Rules for installing gas pipes as ordered by cities (Copy from City Dept.)*

One of the most suggestive of the above questions is number (4) on the growth of the region near Philipsburg, Pa. This is referred to in section *3f*.

2j Business houses and people in general

Kindred to the above are the following eight, some of whose sources of information are also discussed in section 3:

(1) *Concrete dwelling houses (This was in 1905, when a trade catalogue obtained of an agent seemed best source of information)*

(2) *Latest specifications for structural steel of the American Association of Steel Manufacturers (Obtained Pocket Companion from Carnegie Steel Co.)*

(3) *Resistance of steel wire (Information obtained by letter from manufacturers)*

(4) *Cost of heavy machine tools (Advised to appeal to manufacturers or dealers)*

(5) *Balanced draft system, referred to in the Electrical World of 12|23|05 as to be used by Hudson River Power Co. for Utica plant (Information obtained from the publishers by letter)*

(6) *Practice in interurban bridge design for various live loads (Learned from publishers of Street Railway Journal that articles thereon were about to appear in their publication)*

(7) *References on gas producers (Satisfactory information in manufacturers' catalogue)*

(8) *Leakage of heat through the walls of re-inforced concrete (This was in 1905. Wrote to publishers of a trade journal without success)*

The appeal to publishers of technical journals, as well as to manufacturing houses, which played a part in getting answers to the questions of this group, should be an important topic in the proposed handbook (*5d*). In fact *outside resources* as a whole call for a goodly list of suggestions on when and where to appeal.

2k *Food for thought* See also sections 5 and 6.

The following suggest particularly the problem of how to develop the Library:

(1) *Bauxite in Ga. and Ala. and areas of deposits*
(2) *How to dispose of* 51 *volumes of the Transactions of the American Society of Civil Engineers?*
(3) *Effect of crowded English cities on public health*
(4) *Efficiency of transmission lines*
(5) *Resistances of alloys*

In considering the above the following questions arise:

(1) How far shall we stock the Library with data on mineral resources? Out of our usual line, but likely to come up, are questions similar to the one regarding bauxite, as experience has shown. The immediate question was answered; the question of *how to be equipped for the future* still hangs fire.

(2) What shall we do with *good things that take up room but are not in immediate demand?* with the mass of literature that is out of date, superseded, dead, or otherwise supernumerary so far as our purposes are concerned? At present we have what we call a "give-away sale", which means that most of the material is thrown into the waste-basket. The particular question of disposing of the 51 volumes was personal, being asked by one of our engineers. Likely enough, in the near future we would gladly purchase them at a high price. Meantime supply and demand fail to meet. (See 6*b*.)

(3) The question as to the *effect of crowded cities* characterizes the wide range of the work and the need for bearing in mind general articles that may have to do with the extension of trolley lines for increasing the suburban population. How shall we keep in touch with these broad ideas without spending on them more time than is justifiable? It is almost the same question as *What shall we read in the magazines?*

(4) The *efficiency of transmission lines* was a question soon dropped as not at the time likely to be answered. It suggests, however, the need for keeping alive to the literature of efficiency. Often data of this kind is so much the stock-in-trade of its possessors that they are loth to publish it. How much, then, shall a private library attempt to publish of what the concern has obtained as a business asset? The concern itself must settle that. If we cast our bread upon the waters shall we get it back? There are those who say, "Get all you can and tell as little as you can." If therefore we tell everything, who is going to confide in us?

(5) *Resistance of alloys.* Data on this point was readily found, but found in several books a little differently stated in each. Which shall be our standard? Why not go to the same book as often as possible? then in the future we can assume that this is the book responsible for the data which may be disputed. At present we are apt to haphazardly plunge into whatever publication strikes our eye or our mind first—the-rule-of-thumb system—almost forgetting that we have a somewhat classified card index. The proposed handbook (*5d*) may clear up this difficulty.

2l Lack of system

The following questions came up more than once, sometimes however in a little different form, as in the case of numbers 6, 7 and 8. They emphasize the importance of keeping a copy of each bibliographical list that is made, lest there be a subsequent call for it; also the importance of better team work throughout the departments (*3e*), so that if one man studies a special subject the fact will be known before others start to study it. Who is to blame? Human nature, I should say. I feel certain that persons connected with rapidly growing concerns will bear testimony to this tendency to overlap in various features.

(1) *Copy of contract to build Panama Canal (Obtained once or twice before, but mislaid)*
(2) *Air left pumps for water (Wanted by two or more engineers at different times)*
(3) *Auxiliary station uses (Seems to have been asked from the engineering and also the advertising standpoint)*
(4) *Books on municipal ownership (Demands for such literature would warrant some good bibliographical work)*
(5) *Articles on depreciation (Requested by several specialists (?))*
(6) *Motor cars on steam railroads (This and the two following show a series of kindred questions)*
(7) *Gasolene car on Delaware and Hudson R. R.*
(8) *Literature on gasolene cars, such as tried on Union Pacific*

2m Boring, time-consuming, or likely to become side-tracked

The following are an interesting set when one has only to speak of them by way of illustration:

(1) *Sheet in the Street Railway Journal giving car mile rates*
(2) *Author indexes in engineering periodicals (Librarian's memo.)*
(3) *What is in the question box of the American Street and Interurban Railway Association? (Librarian's question)*
(4) *Constitutions of different states of the Union*
(5) *Effect of Indianapolis and Dayton interurbans on the growths of the cities they serve*
(6) *Is there a white-cedar juniper?*

(7) *Contract between the Y———— Telephone Co. and the Z———— Co.*

(8) *Will you explain to me your library system?*

(9) *How much time is spent on research? (Librarian's memo.)*

They all represent something that ought to be done towards systematizing for future contingencies. Number (1) may be asked again and again, and any one in the Library should be able to find the *railway data sheet* readily. How shall it be indexed so that one can hardly help finding it? I did not succeed in finding it indexed in the Journal itself.

(2) The memo suggested by number (2) is simply to take the time to write to one of our best journals which has about *six different kinds of indexes,* suggesting it include still another index, that of authors. But it takes time and mood to give such advice, and so the matter is postponed indefinitely.

(3) *Index the question box!* A time-consuming and dubious task, which must await its day.

(4) *Constitutions of the different states.* We need them (somewhat), but inquiry shows that they have not recently been compiled, and, should we buy the old volume, how about the amendments and the new constitutions? The question has been indefinitely postponed.

(5) *The effect of interurbans* is typical of questions that the Library may throw light on, but which often cause an appalling amount of time to be spent in vain.

(6) The question of a *white-cedar juniper* is such as one can never be sure of answering correctly. I believe this question came up in connection with a letter having to do with the purchase of lumber, and that it was answered after doing some research whose results were largely a foregone conclusion. The local names in the lumber business are manifold.

(7) *Hunting for a document alleged to be on file* when the "filers" say it isn't, often takes an unconscionable amount of time. But the trouble is, once in perhaps fifty times the Library is wrong, and then it may get a reputation that is unenviable.

(8) We like to explain our *library system,* but the people who want to know it come as thieves in the night, and between us plenty of time slips away in this pleasant duty.

(9) It is a good thing to know *how long it takes to answer questions,* but how wearing on the nerves to keep track of such time! Likewise the Library itself is an untold expense, but what an undertaking to make its value concretely known! Many ideas worth while are lost when they come too fast or at times that would cause interruption of the work at hand were they recorded. Let us have a system for getting system; a method for getting method, to which end we are of course working.

Often much time is spent on an unimportant question simply because one hates to be stumped. It is apt to be a case where one puts self, personal pride, before duty, and is certainly at the bottom of many a failure in life. But then, the powers-that-be may have asked the question without designating its unimportance, and so one frequently needs to take chances and decide for himself how much or how little time is justifiable. This, of course, is nothing but an ordinary problem of business.

2n Discouraging, yet instigating

Like the preceding, only worse, but suggesting the largeness of the problem, are the following:

(1) *Data on the total exports of Puget Sound in* 1903 (*Authorities differed*)

(2) *How long does it take to grow a forest?*

(3) *How much manufactured oxygen is consumed in the Atlantic States?*

(4) *What is the market for carbon tetrachloride?*
(5) *The effect of municipal ownership on the money borrowing rates of cities*
(6) *The early fear of railroads*
(7) *Outing resorts (under specified conditions)*

(1) In regard to the *exports of Puget Sound,* the National authority and the local authority disagreed by millions of dollars, and this ugly state of affairs tempts one to believe what the fool hath said in his heart. After considerable correspondence I believe the question was rather unsatisfactorily settled. Likewise a question as to the highest mountain in the United States found differing authorities.

(2) The *time to grow a forest* allows, of course, a wide range of opinion, but I suspect that an estimate within 50 per cent. of the actual time for the locality that was in mind would have sufficed for the argument at hand.

(3) and (4) The statistical *questions on the consumption of products* have proved surprisingly difficult, yet how valuable to know the demand for something you want to supply! The market for carbon tetrachloride we asked in vain of publishers of trade journals, of universities, etc.

(5) The effect of *municipal ownership* on the credit of cities is a question of obvious importance and one that I dare say is well answered by this time. It was asked nearly two years ago, and then the Library was advised not to spend too much time over it.

(6) To discover the *early fear of railroads* meant looking into the older books of the Public Library, but the arguments found were not regarded as sufficiently to the point for the purpose in mind; and it seemed a good deal of time inefficiently spent. Just the question to refer to an information bureau or public library research expert! The day then seemed far distant (a little

over two years ago) when we should avail ourselves of such an assistant; but I believe, from recent developments, the day is near at hand when we shall frequently employ this kind of service, or have our own specialist. (See sections 5*d* and 7.)

(7) I have used a collective title for a group having to do with *vacations,* and I regret that this "welfare" aspect of our equipment does not enable us to answer more satisfactorily questions of this class that come up. The trouble lies largely with the yet poorly systematized methods of connecting demand and supply in the matter of board, lodging and real estate generally. I know that one or two Boston offices, and several newspaper and magazine publishing houses in New York and doubtless elsewhere, have a goodly collection of outing literature and numberless letters bearing upon it. But I have yet to be convinced that they half satisfy the multifarious demands. What summer hotels along the New England Coast, for instance, have plenty of rooms with open fireplaces? is a question that a friend of mine would like answered. How inefficient the classified summer advertisements in our daily newspapers when we come to consider them from the point-of-view of the person who knows just what questions he wants answered.

2,o Personal

We need but little comment upon this group. The following six citations are typical of many others, number (3) being that of a colored man who desired to advance from our janitorship to doing something for his own race. I regret to say that no satisfactory response came from Liberia. It would seem to me that about one question in ten is of the personal sort:

(1) *Book giving pictures of interior decorations*
(2) *List of automobile publications*

(3) *How to arrange for export and import business with Liberia?*
(4) *In which one of Dickens' novels does Tom Pinch occur?*
(5) *A book giving the tide tables for minor places*
(6) *A good place for a house party at low rates*

Additional examples abound plentifully in various of the other groups.

2p Personal equation, gumption, rule-of-thumb, etc.

The following requests were fulfilled in a variety of ways. In two or three cases some one happened to remember that somebody else knew the answer; in others a good guess was made at what the questioner intended, or luck in some form helped out. The human element enters into business of every kind, and we can hardly hope, in this generation at least, to solve all our questions by the luxury of a push-button or nickel-in-the-slot machine.

(1) *References on electrical fountains*
(2) *Household refrigerating machine and electrically operated carpet-cleaner said to be advertised by Edison Co. of Boston*
(3) *Equation of hysteresis*
(4) *Article in Street Railway Journal a few months ago on "long-distance engineering" (i. e., "designing at arm's length")*
(5) *Volume of an engineering magazine (not American) that the petitioner had borrowed two months ago or so.*
(6) *World's Fair official guide giving altitudes (i. e., World Almanac)*
(7) *Bullinger's buyers' directory (i. e., "Hendricks' Commercial Register")*

(8) *Get me that sheet of paper which I said, "Look out or it will be lost"*

(9) *Please file this paper in such a way that it can be found even if the one asking for it "don't know what they want"*

Other amusing ones have gone unrecorded.

2q Elementary and other books of a particular class

Requests that ought readily to be complied with are those for books of a given class. Bibliographies are needed in all the branches of our business interests, but have yet to be made. The proposed handbook (5*d*) should largely meet this want. There is a welcome tendency for libraries to issue book lists, and let us hope that the A. L. A., in co-operation with different libraries, universities, etc., will continue to issue lists (annually revised) on various aspects of engineering, industrial arts, etc., so that persons wishing to study a subject can readily get at the needed books for their stage of development. Illustrative questions under this head are hardly worth while. Beginners' books on steam engines; a small electrical dictionary for use of stenographers; books on gas manufacture, etc., are such as I have in mind.

2r Supererogatory of over-answered

Does not one again and again find himself doing the work of others? Sometimes there is no escaping this; but when he is asked innocently to do that which the petitioner himself should do, what then? I cannot help feeling that this touches all librarians. Shall the Library users have all the literature they want placed before them? or shall they be advised of its whereabouts and recommended to dig it out for themselves? If asked for references on the Panama Canal, shall we produce them all? or shall we say, "Here are the books and the periodicals and the

indexes, look them through or get your understudy to do it; if we do it ourselves, the Library, and, indirectly, you yourself will be the sufferers?" This touches the self-respect of the department. We should consider the importance of our own time and of the subjects we are looking up in relation to the business as a whole. It presents a difficult problem, for the degree in which members of the office co-operate varies like all human nature. Furthermore, extensive library work in connection with a business house is yet too new a feature for its exact relation to other parts of the organization to be fully realized.

An example of what would seem an over-answered question was one on the adaptation of electricity to machine tools. We not only supplied references available in our office magazines, with slips marking the very pages, but we appealed to the Engineering Index for clippings, and these kept coming in for months afterwards. All personal questions (2-0) may be said to be over-answered, if answered at all, assuming that the Library is for business only; yet it would hardly be civilized to interpret the avowed purpose of the department with absolute strictness.

3 SOURCES OF INFORMATION

The sources of information may be classed as follows:

- a Documents, mostly typewritten, the records of the business
- b Books, pamphlets and periodicals
- c Maps, atlases, etc.
- d Indexes, catalogues, lists, etc.
- e Other departments
- f Other libraries
- g Business undertakings, institutions and people in general

h Miscellany: some unappreciated publications, emergencies, etc.

One naturally expects that books and periodicals are the chief sources of information in a business library as in any other, else the term "library" were a misnomer. And yet misnomer it may in fact be when applied to this library; for the printed literature was taken on several years after the document file had been established, and in numbers there are perhaps fifteen times as many documents on file as books and periodicals combined. Hence more properly the Library is called the Filing Department of the office, where literature is kept that may be needed for the purposes of the business. (There is also a Mailing Department where the correspondence is kept.) In the preceding section the documents are not mentioned because the bulk of the reference questions are answered from the books, pamphlets and periodicals. When one or more documents are handed out it is in response nearly always to a request for a report, an estimate, some miscellaneous papers, or the like, pertaining to such and such a proposition, company or other interest. Usually a document is asked for by name, that is, the one asking knows exactly the paper he wants; and although various documents contain engineering and statistical data that might well answer many of the questions that come to the Library, the habit of consulting the Document File as a matter of course for such information has hardly yet been formed. This emphasizes the need for a handbook which shall be suggestive as to when to look in the records of our own work as well as in the publications of others.

In round numbers there are some 2500 books and periodicals and 35,000 documents, the collection being added to at the rate of perhaps 25 a day in the proportion of something like one to fifteen—not a large Library, but one that aims to be and ought to be efficient for its purposes. The library force of six persons may

seem out of proportion to the number of pieces on file or the results obtained; yet we are asking for still another to help us out.

3a *Document File*

This need be considered but briefly, as being of more interest to the business house than to the library fraternity, besides being adapted particularly to the personal needs, as it were, of the business with which it is connected. It is largely typewritten matter, including propositions, statistical and financial papers of various kinds, legal papers such as franchises, petitions, mortgages, contracts and the like, also reports, estimates and a manifold variety of engineering papers, all bound in such documentary fashion as convenience requires. Maps and photographs, though considered as belonging to the Document File, are often of such sizes and make-ups as to require their own cabinets.

Nearly every large concern has its records thus stowed away for reference, and important, extremely important at times, these are. A book or periodical can generally be replaced or seen elsewhere; but a typewritten document is often a sole copy and rarely more than one of two or three. Formerly (from the outset in 1889 to perhaps 1894) these personal records, together with a casual few current technical journals, which were not preserved for binding, and also a few handbooks and textbooks that were inherited from school or college days, were thought to suffice for the literature of the business. But as the work grew complex and the management of electric railway and lighting corporations in different parts of the country superseded the local and somewhat routine engineering work, a wider scope of information was desirable than that afforded merely by experience, by talking things over, or by reference to somewhat antiquated handbooks. Hence the custom of binding periodicals and adding to the equipment special books on special subjects: hence the collection of

3b *Books, pamphlets and periodicals*

Up to and including the year 1900 there were a few bound journals and a small but growing list of reference books, precariously looked after and borrowed with little regard to their ever getting back. While January 1, 1901, passed without a radical change in the Library, yet in the course of two or three years it seemed wise to have a goodly collection of technical journals dating from the beginning of the century, and so the several publishers were bothered by us in our efforts to secure the numbers back to that date. Later on they were again bothered when it was deemed a convenience to have at hand a set of duplicate indexes (also dating from the first of the century) to obviate taking from the shelves volume after volume of the heavy and often dusty books in the process of looking up some fussy little reference. The past six years marks a steady growth in the accumulation of printed literature, in the use of it and in the unconscious absorption by the library force of what ground the literature covers. It further marks the growing sense of what a limited knowledge we actually have of the wealth of information within immediate reach. We have, for instance, a fair idea of the scope of Poor's Manual of Railroads, and quickly we are minded to refer to this annual publication when some familiar question makes it opportune. So also the Century Dictionary and the Street Railway Journal—we are alive to much of the wealth of these publications; yet I venture to say there is many a time we overlook just such volumes when they contain just what we wish to find. But there are other publications with much useful information, whose possibilities we have hardly begun to fathom. Such are the ponderous volumes of the Document Catalogue published by the Superintendent of Documents, at Washington; such is Chisholm's Handbook of Commercial Geography; such is the Final Report of the Industrial Commis-

sion—all familiar, I dare say, to those trained nowadays in the library schools. I mention these in order to emphasize the fact that in spite of our having gone far to build up the Library for business uses, it is still crude and the hand of the amateur is much in evidence.

It is hardly profitable to dwell upon the general literature of the Library. Suffice that we have books and periodicals bearing upon finance, electric lighting, electric transmission, and street railway construction and operation; that we are well equipped with literature on re-inforced concrete, steam turbines and gas engines; that we have two encyclopedias, several rhetorics, the railroad commissioners' reports from many different states, various government publications of engineering interest, notably reports of the Chief of Engineers of the War Department and such publications of the Geological Survey as Mineral Resources, reports of fuel tests and the Topographic Maps (nearly up to date, as noted in 3*c*)—all these making a useful collection in which the orthodox librarian will find many an old friend. We subscribe for upwards of sixty periodicals, including such popular ones as the World's Work and such technical ones as the London Electrician; and we subscribe for about forty newspapers local to the cities in which we have business interests. We make much use of indexes (as noted in 3*d*), and we aim to keep in touch with book reviews (as noted in 6*a*), while in the Purchasing Department are a large number of trade catalogues.

3*c* *Maps, atlases, etc.*

We try to have all the topographic maps that the Government has published, for who knows whence a proposition may come? We need to know the nature of the country in considering an electric railway scheme; we need to know the course of

rivers in considering water power electric transmission schemes. We should like to have today the topographic maps that were published yesterday; but how can we arrange this, since the Geological Survey is not allowed to open accounts? Not even can it accept a deposit in advance and draw upon this as fast as the maps are issued. Our method is to send three dollars about twice a year for "all the maps that have been published since our previous order," (asking for the balance in sheets that are usually duplicates for us and often of mere waste paper value). In addition to these Government maps we have the Rand-McNally state and city maps, besides those of the Scarborough Company and of many other publishers for the different localities in which we are interested; so also the Century Atlas and the yearly Rand-McNally Business Atlas, also some atlases local to Massachusetts. How to have the latest editions of the different city maps come to us as soon as issued, presents a problem we are trying hopefully to solve. We have placed a general order with a Boston bookseller to the effect that he shall keep track of the latest maps for us. The maps of the Official Guide to the Railways, etc., and of the various other pathfinders, of the encyclopedias, of the Newspaper Annual, of the Street Railway Red Book, of the Statesman's Year Book, etc.—in short, those that are issued incidentally to a large number of publications—might well be borne in mind, though there is little likelihood of their being wanted by us except possibly when they have convenient scales for some particular purpose. Lippincott's Gazetteer and the gazetteers of the Geological Survey are, of course, valuable publications, the former of which we refer to very often. We have also the List of Maps of North America published by the Library of Congress, and when recently a map of the Arctic Ocean was wanted we found this publication a suggestive source for reference. Finally there are the outline maps whose possibilities we do not realize, but which, if we

can but remember it, may be most useful in sketching out the course of a proposed electrical undertaking.

3d *Indexes, catalogues, lists, etc.*

The *Engineering Index,* of several volumes, from 1884 to the annual of 1906, inclusive, with also its monthly issue, makes a good starting point for engineering research. Not satisfied, however, with even the annual volume, we clip the monthly issues and paste them in classified form (as noted in 4*b*), so as to have ready references as nearly to date as practicable. Another great convenience is our collection of *duplicate indexes* (as noted in section 3b, first paragraph), which has proved a great time saver at little extra expense. Ten to fifteen cents is the usual cost of such indexes as we care to keep in duplicate, while several of them are incidental to our subscriptions to two or more of the journals that we refer to oftenest. The new publication entitled *Technical Literature,* with its classified references (published at 228 Broadway, N. Y.), is likely to prove an important source of information, particularly if at the end of the year or half year its references are to be cumulated or if it is to have an index to the monthly lists. An index to the more general periodicals, including also some of the important engineering and statistical monthlies and a few of the weeklies, is the *Reader's Guide,* most familiar to librarians. Perhaps the first comment I would make regarding this is that we forget the fact of its indexing any of the engineering journals. We forget, for instance ,that it indexes the Engineering Magazine, Cassier's Magazine and the Scientific American; and I should be interested to know whether many librarians forget such facts. The *Cumulative Book Index* and the *Book Review Digest,* together with the *United States Catalogue,* are publications whose usefulness compounds with one's experience At first we considered them the booksellers'

prerogative and something of a white elephant, but the monthly Cumulative Book Index and its compilations, the U. S. Catalogues, have proved useful, not only for looking up single books that have been published or are going to be, but for lists of books of a given class. And yet the rank and file of our engineers and others who fail to comprehend the workings of the Library seem unable to grasp the idea that such publications exist. *Science Abstracts* (electrical engineering section) we also take, but do not fully appreciate because the same ground is largely covered by other publications. Not fully appreciated by us also is the *Annual List of New and Important Books Added to the Boston Public Library,* which publication for the last two years has had its index of authors and subjects. This, like so many other good things, begs the question with us, and we must become *used* to it before we use it. A publication that is proving surprisingly useful is the *Newspaper Annual,* which, in spite of its title, is also a directory of magazines, telling where they are published and how much they cost, while it includes also maps, population statistics and other interesting data. Novel, but a publication that should be welcomed, is the *Topical Index of the Electric Journal,* covering three years. One wishes, however, that the publishers thereof might also bring out an alphabetical index to supplement it. *Bibliographical lists,* regular and occasional, appearing in various journals, look attractive but are readily forgotten unless we go out of our way to note them. The Municipal Journal and Engineer has its Municipal Index, so also the Progressive Age, its list of articles on gas, etc., so also, of late, the Engineering and Mining Journal and others in growing numbers, their respective lists,—all signs of the times when men want to be put readily in the way of keeping up to date in the literature of their life's work. The very inefficient or careless indexing of some of our most important journals emphasizes the need for having at hand more than one source of reference. Frequently

an article is found in one journal through a digest or abstract of it in another. Notably the convention papers of the engineering societies are found first through their abstracts in the trade journals whose indexes appear earlier and are of wider scope than those of the societies' transactions.

This subject of indexes is one in which I can readily get beyond my depth, telling too much that is old and not enough that is new to the average librarian. What I have said may serve to illustrate the stage at which this library, evolved in the interests of the business of Stone & Webster, has reached, besides offering the suggestion that we shall be glad to learn more from those who know. The A. L. A. Book List, the Guide to Reference Books, the Repertorium der technischer Journal-Literatur and other foreign indexes, I have not touched upon, but I have them in mind for special consideration in the much talked of handbook, which will mean collecting and collating the ways and means of readily getting at resources far and wide. Also the Scientific American Catalogue, the special bulletins of various libraries, the Year Book of Legislation and many other bibliographical publications will be considered in the same connection.

3e · *Other departments*

The office is decidedly departmental, the other departments being (alphabetically) the Accounting, Auditing, Corporation, Executive, Mailing, Securities, Statistical, Stenographic, Transfer, and Treasury. The Engineering and Purchasing Departments come under the Stone & Webster Engineering Corporation, which likewise is subdivided, and served by the Library, the separate name and management being largely a matter of convenience.* The managers in the field, the men sent out to take

* See also reprint from Street Railway Journal of July 7, 1906, on the Stone & Webster organization and the property it manages.

charge of interests in various parts of the country, and all who are under their control, should be included as having the Library directly or indirectly to assist them. By the way of indicating the size of the organization I quote from the address of the chairman at the dinner recently held for the office members. He said: "I have made some calculations as to the extent of this Stone & Webster organization. There are about 350 men at present immediately connected with the organization as it is established here in Boston. That includes all the men here, the men of the Stone & Webster Engineering Corporation, the Managers and some others in the field. Now under the control and subject to the direction of these 350 men there are some 12,000 to 15,000 employees, or something over an army division usually placed under the leadership of a Major General."

The above signifies that here are not only many people for the Library to serve, but many from whom it may obtain facts, for whom, therefore, it should act more and more as the clearing-house of information. On request for a description of the Taylor Underfeed Gravity Mechanical Stoker, the Library referred to the Purchasing Department for a trade catalogue. When asked as to the best books on gas it referred to our manager in charge of the Fall River Gas Works Company. To decide whether it is worth while to add this or that book to its files, the matter is frequently referred to such departments as have the subject of the book for their specialty. To obtain statistics, maps, etc., of the various cities in which Stone & Webster are interested, circular letters have from time to time been sent to managers in the different localities. "Other Departments," therefore, as sources of information form an important feature, whose possibilities are by no means fully realized as yet. "Co-operation" is a word to be borne constantly in mind.

3f *Other Libraries*

The Boston Public Library, the several libraries of the Massachusetts Institute of Technology, the State Library, the library of the Boston Society of Civil Engineers and a few other local libraries, have been helpful sources of reference. Of these the Boston Public Library is used by us far the oftenest, not only for emergencies, but habitually for looking up new books. Systematically I have for several years adopted the practice of marking its monthly bulletin and having the accession items clipped and pasted on slips of card index size, which are also stamped for record entries so as to serve most conveniently for memoranda of the books that are looked over. See sample (9b9). The use of other local libraries is so obvious as hardly to need further comment, but the practice of appealing to libraries in distant places for information with which they may be especially equipped, is not yet well developed. The attempt to get statistics regarding a district in Pennsylvania by writing to the local library, as noted in 2*i* (4), is an instance of what I mean, and I regret to say that the results were not encouraging. Here is where the American Library Association can help to cultivate an esprit de corps. Why should not every library be up to date in the statistics of its locality? I suppose the answer is that libraries are not appealed to with sufficient frequency for such information to warrant their giving the attention necessary in order to be equipped to supply it. This is a matter that means a good deal to me and is of course one of the reasons why I desired to present this paper: to learn what other libraries can do for us and what we can do for them; to promote the interplay of libraries and industrial enterprises.

3g *Business undertakings, institutions and people in general*

This group suggests the enlargement to all mankind as the field of resources for information. It is of obvious importance

but has not been systematized. The handbook (5*d*) should cover it extensively, and I pass over it briefly here. I do not pretend to separate clearly the sources we have found available from what I believe should be available or availed of: i. e., the plea for what *ought* to be is mingled with the statement of what *is*. Manufacturing concerns, publishing houses and people, all classified and catalogued just as though they were books, the human race as a great living encyclopedia, is what I picture in working out the library details. (See also section 7, Information Bureaus.) The book agent ought not to be forgotten. He comes in various forms, sometimes as a welcome visitor, sometimes as an unwelcome interruption; but I have in mind the New International Encyclopedia, the Americana, March's Thesaurus, Rand-McNally's Business Atlas, the United States Catalogue, various financial books, such as Obsolete American Securities, that were bought because agents came to see us. There are agents and agents, and we know well what strong prejudices there often are against them.

College professors, though frequently unable to supply commercial data, are often appealed to as authorities on their specialties. I remember a notable instance of time saved by consulting a professor at the Massachusetts Institute of Technology on a matter that I thought I should have to learn of otherwise. One of our men wanted to know to what extent spodumene is used in the manufacture of lithia salts, and the answer the professor gave brought the matter to a sudden end. The information was given somewhat in confidence, so that I do not feel at liberty to repeat it here.

3*h* *Miscellany: some unappreciated publications, emergencies etc.*

The Document Catalogue of Government publications, the encyclopedias in general, the Statesman's Year Book, the al-

manacs, the city directories, the pathfinders, the telephone books (of other cities especially), are among many sources of information that we fail fully to appreciate. I would call particular attention to the telephone book as a convenient directory. We have the New York telephone directory, and if we had also the telephone directories of Philadelphia, Chicago and other cities they would doubtless prove useful in looking up names and addresses.

Mobilizing and specializing are, of course, important features of a business library. For instance, when we began to consider sociological questions such as municipal ownership and the like, the Library was weak in the number of books of this kind. One of our potentates expressed himself to me in strong language regarding our weakness on this point, and so a sweeping order was given which soon equipped us with all the books that we particularly wanted. It is interesting to note how a business concern might hesitate to supply its departments with such trifles as red-and-blue pencils, costing comparatively little but immensely useful, yet might not hesitate to spend many hundreds of dollars for something whose significance seemed of very remote use; but business is business and it takes more than a member of one department to see the business in its entirety and to realize that an indulgence in minor stationery and other petty conveniences may be demoralizing. Many of us may be asking why we are so stinted in our supply of office boys. Possibly we see the office boy only from our narrow point of view, and possibly, for instance, the attention we have to give to details which take the time that we would spend on developing the sides of the work that seem to us of largest importance, may prove a blessing in disguise. This is a matter wherein I doubt not other libraries will sympathize—a complaint that may ever go on until we see the perfect whole.

4 *WORKING METHODS*

The two preceding sections dealt with questions and the resources for getting them answered. This section has to do with method of filing and keeping track of the literature that bears upon our work.

4a Filing and classification systems

This and the other groups of section 4 are largely explained by the samples in the appendix (9*b*). The filing is geographical as far as practicable, that is, we assign the number 1100 to the state of Maine, 1110 to a tenth of it, 1111 to a tenth of that; 1200 to New Hampshire, 1210, 1211, etc., to its divisions, and so on throughout the country, as shown by the sample sheet (9*b*1). The first figure to the right of the decimal is assigned to the company, the rest are for class divisions, 1 for estimates, 2 for statistics, 3 for legal matters, etc., with their subdivisions all as shown by the samples (9*b*2).* Books defy geographical classification for the most part, so that they are shelved generally with numbers only to the right of the decimal. The decimal idea prevails in our Library, though we do not use the Dewey system. This latter, however, seems to have a steady onward march in the library world, and it is hoped that our system (having four figures to the left of the decimal) will not conflict with the introduction of the Dewey system for subsidiary purposes. I may here add that we have recently changed our Engineering Index classification (4*b*) which formerly had three figures, so that it now has two to the left of the decimal, thus not conflicting with the Dewey system.

4b The Engineering Index

The development of this index for our purposes was described in an article published in the January issue of System,

*See 9b8 for samples showing a complete file number, which generally includes the date (e. g. 1491.1251 2-5/07).

1907, entitled "The Classification of Business Knowledge".* We clip the items of this index and paste them away, in sub-classified form, on convenient sheets for reference purposes. The classification was provisionally made four or five years ago by playing a long game of solitaire with the clippings of the monthly indexes of some two years and a half. With the progress of engineering new terms and ideas appear so that the classification needs continual revision. In the main this classification is a subdividing of the general divisions and sub-divisions as given in the Index, the assigning of the number 10 to civil engineering, 11 to bridges; 12 to construction, etc.; 20, etc., to electrical engineering; 30, etc., to mechanical engineering; 40, 50, etc., to other branches; and to the minor divisions, under bridges, 11.1 for arches, viaducts, trestles, etc.; and 11.11 for arched bridges and arches in general. So it is throughout the whole, the 60's and over being reserved for personal matters and sources of information that are not covered by the Engineering Index. Illustrations of the revised classification system and of the pasted sheets are in *9b*3, 4 and 5.

4c *Stone & Webster Current Literature*

This is our private engineering index, as it were, made from noting on slips, of card index size, articles of interest to us in the current periodicals, book accessions and various announcements and memoranda, and listing them on typewritten sheets—or printed ones as a recent innovation—with nearly the same classification as used for the Engineering Index. A sample of this (*9b*6) tells its own story. The items are selected as being of interest to the Stone & Webster organization, and, though distributed to a certain extent gratuitously, its usefulness to others is necessarily limited. We hope, in sending it to various libraries,

*Earlier descriptions (by author) Engineering News Supplement, June 16, 1904, (p. 54) and Library Journal, Nov. 1904 (p. 591).

universities, etc., to encourage an interchange of ideas that will bring into closer relationship the world of literature and science and the world of business. This printed form is planned as a quarterly publication, but we find that it lags too far behind for current purposes. Hence, in mimeograph form we issue for office reference what are called Semi-Weekly Specials (9b7). These, of course, do not admit of the same refinement of classification as the less frequent ones, though the main general divisions are used and serve for convenience in back reference.

4d *Other conveniences and short cuts: index cards, memorandum methods, shorthand, etc.*

This group is perhaps well enough described by submitting samples (9b8, 9b9) of cards, slips, stamps and sheets of various kinds, showing what we use for the geographical files, the subject files, the dictionary file, the information record, the book prices, the method of keeping track of annuals, the method of noting that certain periodicals are to be thrown away after being clipped, (9b10) use of memorandum tag with correspondence and the like, all necessary, some superior, some inferior, to what most other libraries and business houses use. I have found the use of shorthand particularly valuable in making quick notes, to be sorted out later, the difficulty being that the memoranda pile up in such quantities that there is a temptation to postpone indefinitely the time for looking them over. There is danger that the card index system runs riot in the enthusiasm to keep and classify every idea that comes to the Library from whatever source and however remote its possibility of real usefulness.

5 *IMPROVEMENTS AND LIMITATIONS*

Under this caption I would say a few words as to the outlook. The Library keeps fair pace with the growth of the busi-

ness; but so congested is the room, as well as the whole office, becoming that additions and improvements are made generally at a sacrifice of something we are loth to part with. Many books, pamphlets, periodicals, have to be given away or thrown away in spite of probable use if kept, for we must not allow the accumulation to interfere with our walking about. Yet I dare say this practice of deciding what is essential, of separating the wheat from the chaff, is proving, unbeknown to us, a means of making the Library of livest value to the concern.

5a *Direction in which we are building*

The aim of course is to keep the files in close touch with what the organization needs or is likely to need. Now that questions of municipal ownership and relations with the government generally are crying ones, we are wide-awake to note the literature of this kind. So also re-inforced concrete, gas engines, steam turbines, fuel alcohol, peat gas, and data on water power transmission by electricity, are well in mind. We try also to remember the special interests of different individuals. One wants us to keep him advised as to what appears regarding depreciation; another to keep him advised of the statistics of a certain section of the country for which he is sponsor; another of a certain other section, and so on. Then, too, we try to be constructive in our work and publish for the attention of whom it may concern items we think they ought to be informed of: accidents, hostile comments regarding our interests, new inventions along various lines, etc.

5b *Intangible value of library work*

Of what worth in dollars and cents is the Library to the organization? It is charged in the accounts as an expense, and some members of the office regard it as a colossal expense. Once

in a while, however, just such persons may have some question answered which enables them to see that thereby plans in their work have been changed to effect the saving of thousands of dollars, and for this reason there seems to have been a healthy growth of the idea that the Library is a good thing and ought to be maintained in spite of all objections. I myself feel that when we are more closely in touch with other libraries and are getting our information from various parts of the country to a much greater degree than heretofore, there will be decided evidence of what this department is, what it does, and what it can do for the benefit of the organization. It is too much in its infancy as a feature of business life to be accepted as a matter of course. Its value is still to be guessed.

5c *The human equation*

What makes library work everlastingly interesting and stimulating is largely the same that makes it often discouraging—the human element. Often people ask for things in vague ways and cause much time to be consumed in vain (see nos. (4)-(9) under 2p) ; they ask for things of little value, yet the pride of the department is not satisfied until the request is fulfilled. On the other hand the department is justly criticised now and then for things important or otherwise that are not forthcoming when they ought readily to be found. And yet, were the work purely mechanical, should no one criticise it, had it not ups and downs, surely it would be much less progressive and useful and interesting.

5d *Handbook*

This has long been in contemplation, but the time has lacked to put it through. It will be essentially a classified collection of suggestions as to where to look for what is wanted. It will, as I see it, consist largely in the printing from a card catalogue a

host of ideas gathered from multitudinous sources: from past experience, from present needs, from suggestions gathered at the A. L. A. meetings, from similar books compiled elsewhere for similar purposes,—in short, from every source possible. It will be a means, if practicable, of making dispensable every member of the Library force, so that new hands could come in tomorrow and take up the work where it has left off—a means of telling every member of the office, big and small, what the Library contains, what it can do for him, how he can use it himself and so leave more time to the librarians to work upon matters that will make the department of still further use to him. The references to books in many classified lists should be a special feature—an index to the Library as though it were one great book. The plan and purpose seem so obvious as not to call for further consideration in this paper.

6 *SOME UNSOLVED PROBLEMS*

There are many more unsolved problems than can be mentioned here; only a few that have bothered a good deal are included.

6a *Keeping in touch with new books and book reviews*

In saying that we take advantage of the Boston Public Library for looking over new books, I did not say that most often these books are "out", nor that the books have generally been on the market several months before they are announced as available in that library. It is generally acknowledged that engineering books, especially of the electrical kind, go out of date very quickly; therefore if the books are going to be of maximum value to us we need to purchase them as soon as practicable after their publication. Who, however, is there to advise us immediately if the new book is worth our while? I have not found that the publishers or the booksellers are very good judges. A

book may be worth the while for one man's purpose and not for another's. Now and then we obtain new books on approval after seeing their notices in various publications. They are submitted to different persons in the office for inspection—an electrical book to an electrical man, a financial book to a financial man, etc. Often, however, the men whose opinions are of most value are very busy, or else are away, and so the books may be submitted to others less qualified to decide whether a given publication should be added to the Library. In this manner books that afterwards prove hardly worth while are hastily approved, and books that are decidedly worth while are hastily disapproved, though in the main I believe the judgment passed is a fair one. Book reviews differ so widely that I hardly know what to make of them. Apparently reviewers of equally good standard will express incompatible opinions as to the value of a given book. I presume, however, that I am only repeating what most librarians have long recognized as an unsolved problem.*

6b Disposal of old books and periodicals

What shall we do with books that are to be discarded because there is not room for them? books that many a person unbeknown to us would be glad to have? editions which have been superseded but are nearly as good as the later ones? literature obtained for a specific purpose which it has now served and is not likely to be needed for again? I have had in mind a clearing-house of books, a municipal clearing-house, if you please, where one could bring all sorts of printed matter, have a value assigned to it and in return get other printed matter from an inventoried list or else a less value in money. Is there such a clearing-house already in existence? or who will start it? Meantime much good literature goes to waste.

*See suggestive article by Ernest McCullough, C. E., entitled "The Ideal Book Review" (Technical Literature, April, 1907, p. 173).

6c *Securing back copies of periodicals to complete volumes, etc.*

This problem is closely allied to the preceding. Judging from the number of books and loose copies of periodicals that we have to dispose of, it is fair to presume that all libraries have their accumulations, and I doubt not in most instances much larger ones. Just as it seems to me much of what we throw away must be wanted by somebody, so I believe much that is thrown away by others must be wanted by us. We know of several sources for securing odd copies of periodicals where the publishers do not pretend to keep their own back numbers. But where is there a general center to which to apply for such? Does the free advertising in the Readers' Guide generally bring the result? Who looks at its column of wants? There is the trouble. We do not do it ourselves, and I suspect that others who have the goods fail to look in the advertising columns for who may be wanting them.

6d *Miscellany*

As noted above, how to keep in touch with the latest issues of the topographic maps is always a question; so also how to keep advised of the publication of public documents. We have adopted the practice of supplying the State Printers in Boston with postal cards (typewritten as blank forms and addressed to ourselves) that they may notify us of the day when a given document goes from them to the State House. This information is gratuitous on their part, and humanly enough they do not always advise us within twenty-four hours of the date in question.

7 *INFORMATION BUREAUS.*

I have long hoped for and worked toward the inauguration of a general clearing-house of information—a center to which all men make known what they want to find out and what they have

to tell to others. If John Brown of London, Ontario, is better informed on peat gas than anyone else, and yet is diffident to advertise himself or write articles for the magazines, how shall we find him out if we desire to appeal to the highest authorities on peat gas? Were there a general and impersonal clearing-house which catalogued people as sources of information, would they not from every nook and cranny of the country be glad to make known their specialty or their special facility to this headquarters? and would not those desiring information readily look to such a center?

7a Bureau of Applied Information

The prospectus of the Bureau of Applied Information, whose executive offices are at 420 Boylston street, Boston, may be had for the asking. It very largely covers what I have in mind. Doubtless there have been and are other incipient clearing-houses, for I have heard of them. Perhaps several such will soon come together and in the modern fashion form a trust which would be financially strong and would inaugurate a national system. All hail to them!

7b The A. L. A. as a clearing-house

Why does not the A. L. A. fulfill this need, making the Boston office the headquarters or else inducing the Library of Congress to become the national center?

7c Plea for Association of Reference Librarians

I am not aware that the reference librarians of the country are closely associated otherwise than at these annual meetings of the A. L. A. Why should they not be formed into an association which work all the year around, perhaps thus specializing each in some particular direction and looking to others for specialties of another kind?

8 *ESPERANTO*

This is seemingly remote from the subject at hand, but as an enthusiast I want to express my hopes for the day when we shall read subjects of technical and scientific interest written in this simple international language by the German, the Italian, the Russian and others whose native languages one may not readily follow. We are all aware that the foreigner writes many an article of exceptional worth that is *not translated;* and I know that we miss a great deal on this account. Information with regard to Esperanto may be obtained by addressing Secretary of the American Esperanto Association, Boulevard Station, Boston, Mass.

9 *MISCELLANY*

9a *Outlook and Suggestion*

The possibilities of a library are as far-reaching as the work is interesting; and this paper may be considered as merely an interrogation, asking such open questions as, Who are working along similar lines? What business houses or manufacturing concerns consider library facilities as part of their equipment? What is the tendency? Are libraries becoming more and more recognized as centers for knowledge rather than merely centers for books, and do they welcome such recognition? If John Smith of Salem, Massachusetts, wants something, and John Smith of Salem, Oregon, has the goods to deliver, how shall the two find each other out? I hope that we shall be helpful towards this end of bringing together demand and supply of information and of all services that can be rendered. This means having an eye to the horizon of the work and a mind to its ethical aspects.

There has been much discussion regarding the distribution of public documents and the cast iron law that makes for waste in some directions and shortage in others. I would see the Ameri-

can Library Association come forward to engineer the legislation needed to bring about a more satisfactory state of affairs—a suggestion that was brought out by Mr. Post's paper at the Asheville convention. Such a campaign would involve expense; but an appeal to the interests of the large corporations of the country, telling them what the organized library forces could possibly do in their behalf, how they might co-operate in the establishment and maintenance of a great legislative and reference library which would keep each corporation in touch with the legislation that bears upon its interests, and obtain for it the needed public documents, bills in Congress or before legislatures, at the earliest possible date,—should bring about a financial backing that might well give this Association the strength it aspires to. It seems to me that today libraries are still generally considered by the public as storehouses for books and resorts for readers, but not weapons of business, as I believe they ought also to be.

APPENDIX

REPRODUCTIONS (REDUCED SCALE)

Geographical Filing Schedule

(See 4a and 9b8)

*1000-6900 UNITED STATES

1100 Maine
1200 New Hampshire
1300 Vermont
1400 Massachusetts
1500 Rhode Island
1600 Connecticut
1700 New York
1800 Pennsylvania
1900 New Jersey

2000
2100 Delaware
2200 Maryland
2300 Virginia
2400 West Virginia
2500 Ohio
2600 Indiana
2700 Illinois
2800 Wisconsin
2900 Michigan

3000
3100 Kentucky
3200 Tennessee
3300 North Carolina
3400 South Carolina
3500 Georgia
3600 Florida
3700 Alabama
3800 Mississippi
3900 Louisiana

4000
4100 Minnesota
4200 Iowa
4300 Missouri
4400 Arkansas
4500 North Dakota
4600 South Dakota
4700 Nebraska
4800 Kansas
4900 Oklahoma

5000
5100 Indian Territory
5200 Texas
5300 Montana
5400 Wyoming
5500 Colorado
5600 New Mexico
5700 Idaho
5800 Utah
5900 Arizona

6000
6100 Washington
6200 Oregon
6300 Nevada
6400 California
6500 Alaska
6600 COLONIES
6700 U. S. Government
6800 U. S. at large and Interstate
6900 U. S. gen. Companies or System

7000 BRITISH EMPIRE
7100 Grea Britain & Ireland
7200 British America
7300 Australasia
7400 India
7500 Africa
7600 Other Possessions
7700 British Government
7800 British Empire at large and Interstate
7900 General Cos. or systems

8000 World at large, except U. S. & British Empire
8100 Europe
8200 Asia
8300 Africa
8400 Oceanica
8500 South America
8600 Mexico
8700 Central America & West Indies
8800 At large and International
8900 General Cos. or systems

*Where matter to be filed should properly be classified as interstate or inter-city the general numbers 1000, 2000, etc., may be used unless one city or state predominates.

Subject Filing Schedule

(See 4b and 9b8)

.01 PROPOSITIONS
.011 Lighting
.012 Railway
.013 Power
.014 Bankers' Circulars, Bond Circulars
.015 Mining
.016 Consolidations & Purchase
.017 Invention
.018 Correspondence Numbers
.019 Book Correspondence, Telegrams

.02 STATISTICS & FINANCE
.021 Lighting
.0211 Earnings & Expenses
.0212 Trial Balances
.0213 Operation
.022 Railway
.0221 Earnings & Expenses
.0222 Trial Balances
.0223 Operation
.023 Power
.024 Maintenance & Depreciation
.025 Stocks & Bonds
.0251 Issues of
.0252 Specimen Certificates
.0253 Lists of Holders
.026 Population
.027 Trade
.028 Catalogs, Lists, etc.
.029 Insurance

.03 LEGAL
.031 Art. of Inc. Charters, Franchises & Grants
.0311 Lighting
.0312 Railway
.0313 Power
.032 Affidavits
.033 Litigation
.034 Opinions & Advice
.035 Petitions & Hearings
.036 By-Laws, Minutes of Meetings
.037 Mortgages & Trust Deeds
.0371 Releases
.038 Taxes

.04 AGREEMENTS & CONTRACTS
.041 Lighting
.042 Railway
.043 Power
.044 Material or Installation
.045 Insurance
.046 Purchase & Lease of Properties
.0461 Deeds, Property
.0462 Deeds, Right of Way
.047 Syndicate & Reorganization
.048 Pole

.05 REPORTS (& ESTIMATES)
For tests, etc., See Eng'g .07
.051 Lighting
.052 Railway
.053 Power
.054 Audit
.055 Telegraph & Telephone
.056 History & Diary
.057 Inventories & Appraisals
.058 Returns & Annual Reports
.0581 State
.0582 Company
.0583 Tax
.059 Inspectors' Reports

.06 ILLUSTRATIONS
.061 Maps & Plans
.062 Drawings, Prints, etc.
.063 Diagrams
.064 Photographs & Negatives
.065 Advertising & Ill. Articles

.07 ENGINEERING
.071 Electrical
.072 Mechanical
.073 Civil
.074 Chemical
.075 Mining
.076 Sanitary; Heating & Vent'g
.077 Architectural
.078 Gas, Production & Application

.071 ELECTRICAL & GAS ENG'G
.0711 Lighting
.0712 Railway
.0713 Power
.0714 Transmission
.0715 Storage
.0716 Telephone & Telegraph
.0717 Electrolysis
.0711 ELECTRICAL & GAS LIGHTING
.07111 Power Stations
.07112 Power Stations, Equipments
.07113 Arc Lighting
.07114 Incandescent Lighting
.0712 ELECTRIC RAILWAY
.07121 Power Stations
.7122 Power Station Equipments
.07123 Overhead Systems
.07124 Third Rail Systems
.07125 Underground Systems
.07126 Roadbed & Track
.07127 Rolling Stock
.07128 Car Equipment
.070001 Specifications & Contracts
.070002 Inspections & Tests
.070003 Estimates & Proposals
.070004 Illustrations

General Classification for Engineering Index

(See 4b)

10 CIVIL AND GEN. ENG'G; (also gas works eng'g)
- 11 Bridges
- 12 Construction
- 13 Materials of construction
- 14 Measurement
- 15 Municipal
- 16 Water supply
- 17 Water ways & harbors
- 18 Gas Works eng'g (suspended after summer of 1904)
- 19 Miscellany

20 ELECTRICAL ENGINEERING
- 21 Communication
- 22 Distribution
- 23 Electro-chemistry
- 24 Electro-physics
- 25 Generating stations
- 26 Lighting
- 27 Measurement
- 28 Motors & transmission
- 29 Miscellany

(INDUSTRIAL ECONOMY equals 70)
(MARINE AND NAVAL ENGINEERING equals 57)

30 MECHANICAL ENGINEERING
- 31 Automobiles
  (Heating & cooling equals 39.5 & 39.7)
- 32 Hydraulics
  (Internal combustion motors equals 37)
- 33 Machine works & foundries
- 34 Materials of construction
- 35 Measurement
- 36 Power & transmission
- 37 Special & internal combustion motors
- 38 Steam engineering
- 39 Miscellany

40 MINING, METALLURGY, ETC.
- 41 Coal & coke
- 42 Copper
- 43 Gold & silver
- 44 Iron & steel
- 45 Mining in gen
- 46 Miscellany

50 RAILWAY, MARINE, ECONOMIC & SOCIOLOGICAL INTERESTS IN GEN
- 51 Conducting transportation, finance & misc R. R. interests
- 52 Motive power & equipment
  (New projects equals 51)
- 53 Permanent way & buildings
  (Traffic & miscellany equals 51)
- 54 St. Ry. construction, equipment, operation and technicalities in gen
- 55 St. Ry. statistics in gen & domestic systems
- 56 Street Railway systems in rest of world
- 57 Marine & naval engineering

60 MISCELLANY & PERSONAL

70 SOCIOLOGY, ETC
- 71 Assoc'ns, exhibitions, exchange of ideas, professional practice, training, etc
- 72 Statistics in gen
- 73 Sociology in gen, industrial management, etc
- 74 Finance in gen
- 75 Earnings, expenses, annual reports, etc
- 76 Legal & public relations in gen
- 77 Municipal & gov't ownership, etc
- 78 Publicity adv'g & getting new business
- 80 (For contingency)

90 SOURCES OF INFORMATION IN GEN & MISCELLANY
- 91 Indexes, catalogues, lists, classifications, etc
- 92 Ref books in gen (En'g handbooks, directories, dictionaries, almanacs, etc)
- 93 Maps & guides See also 92
- 94 Languages, literature, history, periodicals, etc
- 95 Public documents in gen See also 70
- 96 Engineering misc See also 10-70
- 97 Arts & sciences, industrial products in gen
- 98 Specialties & personalties
- 99 Miscellany, A to Z (This division to be developed for what does not fit elsewhere)

Sub-Classification for Engineering Index

(See 4b)

13 MATERIALS OF CONSTRUCTION

13.1 Brick, stone, mortar, etc. Concrete 13.3
- .11 asphalt, bitumen, etc.
- .12 brick, tiling, artificial bldg. material in gen, paving material
- .13 marble, slate, stone in gen
- .14 mortar, clay, sand, lime, plaster, gypsum, etc.
- .15 glass & misc

13.2 Cement
- .21 cement in gen., cement blocks, applications, statistical aspects
- .22 manufacture in gen
- .23 specifications, analysis, chemical aspects, tests, experiments in gen

13.3 Concrete, etc. Also 11, 12.3
- .31 bridges, piling, roadbed, marine & hydraulic work in gen
- .32 building, bldg details in gen., concrete blocks
- .33 general characteristics, sundry applications, arches, manufacture, statistical aspects, subway work. Also .32
- .34 specifications, failure, action of sea-water, economic & financial aspects. Also .32, .33
- .35 tests, experiments, etc. Also .36, 13.5
- .36 theory, calculations, math'l aspects, shearing. Also .35

13.4 Experiments, tests, rigidity, elasticity, laboratories, analysis, specifications. See also the particular material.

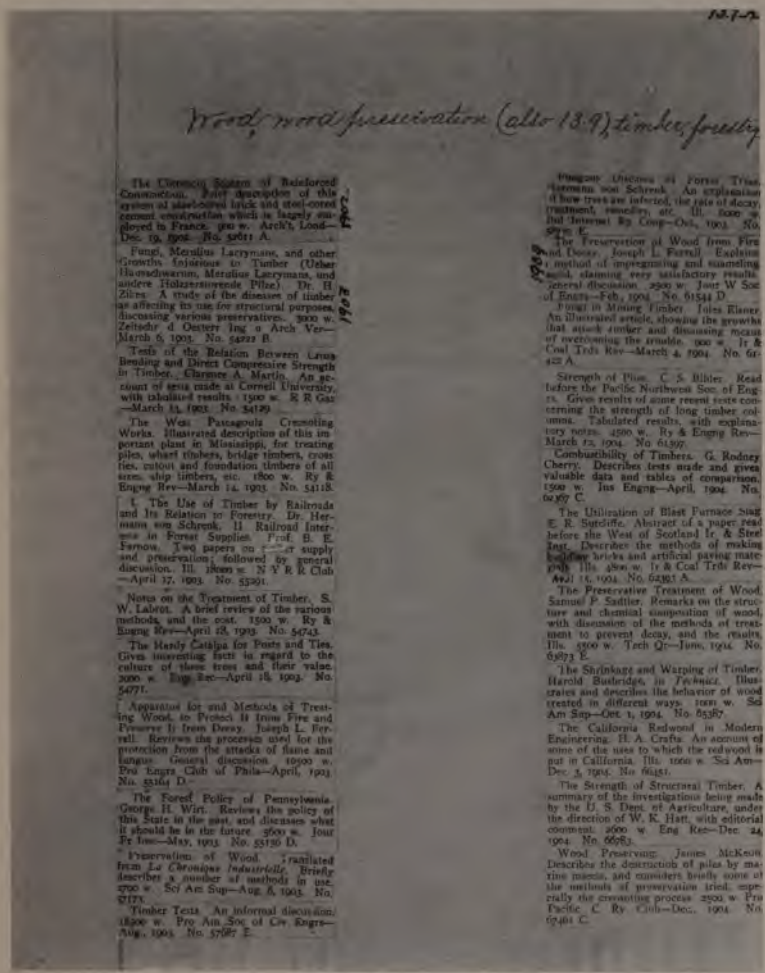
13.5 Fire & water protection & material, paints, white lead, etc.

13.6 Metals in gen, injury, rust, preservation (also 13.9) metal piling. Also 12.32

13.7 Wood, wood preservation (also 13.9), timber, forestry

13.9 Misc., preservation in gen (also 13.6, 13.7), explosives, by-products, slag. Preservatives also under the different materials.

(See 4b)



Wood, wood preservation (also 13-9), timber, forestry

The Clemens System of Reinforced Construction. Brief description of this system of steel-cored brick and steel-cored cement construction which is largely employed in France. 900 w. Arch'l. Lond—Dec. 19, 1902. No. 52611 A.

Fungi, Merulius Lacrymans, and other Growths Injurious to Timber (Ueber Hausschwamm, Merulius Lacrymans, und andere Holzzerstörende Pilze.) Dr. H. Zikes. A study of the diseases of timber as affecting its use for structural purposes, discussing various preservatives. 3000 w. Zeitschr d Oesterr Ing u Arch Ver—March 6, 1903. No. 54222 B.

Tests of the Relation Between Cross Bending and Direct Compressive Strength in Timber. Clarence A. Martin. An account of tests made at Cornell University, with tabulated results. 1500 w. R R Gaz—March 13, 1903. No. 54129.

The West Pascagoula Creosoting Works. Illustrated description of this important plant in Mississippi, for treating piles, wharf timbers, bridge timbers, cross ties, cutout and foundation timbers of all sizes, ship timbers, etc. 1800 w. Ry & Engng Rev—March 14, 1903. No. 54118.

I. The Use of Timber by Railroads and Its Relation to Forestry. Dr. Hermann von Schrenk. II Railroad Interests in Forest Supplies. Prof. B. E. Fernow. Two papers on [illegible] supply and preservation; followed by general discussion. Ill. 18000 w. N Y R R Club—April 17, 1903. No. 55301.

Notes on the Treatment of Timber. S. W. Lalrot. A brief review of the various methods, and the cost. 1500 w. Ry & Engng Rev—April 18, 1903. No. 54743.

The Hardy Catalpa for Posts and Ties. Gives interesting facts in regard to the culture of these trees and their value. 3000 w. Engg Rec—April 18, 1903. No. 54771.

Apparatus for and Methods of Treating Wood, to Protect It from Fire and Preserve It from Decay. Joseph L. Ferrell. Reviews the processes used for the protection from the attacks of flame and fungus. General discussion. 10500 w. Pro Engrs Club of Phila—April, 1903. No. 55164 D.

The Forest Policy of Pennsylvania. George H. Wirt. Reviews the policy of this State in the past, and discusses what it should be in the future. 3600 w. Jour Fr Inst—May, 1903. No. 55130 D.

Preservation of Wood. Translated from *La Chronique Industrielle*. Briefly describes a number of methods in use. 2700 w. Sci Am Sup—Aug. 8, 1903. No. 57173.

Timber Tests. An informal discussion. 1800 w. Pro Am Soc of Civ. Engrs—Aug., 1903. No. 57087 E.

Pregnant Diseases of Forest Trees. Hermann von Schrenk. An explanation of how trees are infected, the rate of decay, treatment, remedies, etc. Ill. 6000 w. Rail Internat Ry Coop—Oct., 1903. No. 59776 E.

The Preservation of Wood from Fire and Decay. Joseph L. Ferrell. Explains method of impregnating and enameling wood, claiming very satisfactory results. General discussion. 3500 w. Jour W Soc of Engrs—Feb., 1904. No. 61544 D.

Fungi in Mining Timber. Jules Elsner. An illustrated article, showing the growths that attack timber and discussing means of overcoming the trouble. 900 w. Ir & Coal Trds Rev—March 4, 1904. No. 62422 A.

Strength of Piles. C. S. Bihler. Read before the Pacific Northwest Soc. of Engrs. Gives results of some recent tests concerning the strength of long timber columns. Tabulated results, with explanatory notes. 4500 w. Ry & Engng Rev—March 12, 1904. No. 61397.

Combustibility of Timbers. G. Rodney Cherry. Describes tests made and gives valuable data and tables of comparison. 1500 w. Ins Engng—April, 1904. No. 60367 C.

The Utilization of Blast Furnace Slag. E. R. Sutcliffe. Abstract of a paper read before the West of Scotland Ir. & Steel Inst. Describes the methods of making hollow bricks and artificial paving materials. Ills. 3800 w. Ir & Coal Trds Rev—April 15, 1904. No. 62363 A.

The Preservative Treatment of Wood. Samuel P. Sadtler. Remarks on the structure and chemical composition of wood, with discussion of the methods of treatment to prevent decay, and the results. Ills. 5500 w. Tech Qr—June, 1904. No. 63673 E.

The Shrinkage and Warping of Timber. Harold Busteridge, in *Technics*. Illustrates and describes the behavior of wood treated in different ways. 1000 w. Sci Am Sup—Oct. 1, 1904. No. 65387.

The California Redwood in Modern Engineering. H. A. Crafts. An account of some of the uses to which the redwood is put in California. Ills. 1000 w. Sci Am—Dec. 3, 1904. No. 66451.

The Strength of Structural Timber. A summary of the investigations being made by the U. S. Dept. of Agriculture, under the direction of W. K. Hatt, with editorial comment. 2600 w. Eng Rec—Dec. 24, 1904. No. 66983.

Wood Preserving. James McKeon. Describes the destruction of piles by marine insects, and considers briefly some of the methods of preservation tried, especially the creosoting process. 2500 w. Pro Pacific C. Ry. Club—Dec., 1904. No. 67401 C.

REPRODUCTION OF PASTED ENGINEERING INDEX CLIPPINGS
(reduced scale)

(See 4c)

8 **An unusual fire test of Portland cement in British Columbia.** 28-0.5e-ERd-1|5|07

9 **Tests of concrete.** I. Shear. II. Bond. A N Talbot. Rev. by CFMcKenna. (r) 85-0.3p-EN-1|17|07

1060 **Bond between concrete & steel.** Data regarding tests. Abs TLCondron. ESE+79-1.5p-MR-1|31|07

1 **Tests of bond between concrete and steel.** Abs Prof De Puy. WSE+79-2p-RD-1|18|07

2 **Instructions to inspectors on reinforced concrete constrn.** GPCarver. 1906 3x6, pp 8. (35c) *077. C 35.

3 **A form of inspector's sheet for concrete constrn.** +2-1.1p-EC-1|2|07

4 **Safety in concrete constrn.** Abs RLHumphrey, NCUA. 81-1.5p-ERd-1|19|07

5 **Metal corrosion in cinder concrete. A rep on experiences in San Fran.** 823-2p-EM-1|07

6 **The fatigue of concrete. Abs J L Van Ornum.** Ed 29-0.5p-ERd-1|12|07

7 **Recent failures of reinforced concrete structures. Ed. & Abs from EN.** *+6-3p-TL-1|07

8 **The lesson from recent failures of reinforced concrete structures. Abs Egrg News.** Lessons—No competent person responsible for the work in cases of failure. An Engineer disinterested in the construction contract should design & superintend the work. 140-1.5p-AG-1|24|07

9 **The lesson from recent failures of reinforced concrete structures.** DTPierce, GSMills and OOC (letters) Referring to EN 11|29|06. Ed. 26-0.8p-EN-1|3|07

1070 **Collapse during constrn of a reinforced concrete bldg of Eastman Kodak Co., Rochester.** *+11-1.2p-ERd-1|5; *+130-1.07-1|31

1 **Why the Bixby Hotel fell; reinforcement was careless.** Abs J.BLeonard. 30-1p-C-1|15|07

2 (11d) **REINFORCED CONCRETE IN GENERAL**

3 **Glossary of terms used in concrete work.** (From Egrg World.) 11|16|06; 59-1.9-C-1|18|07

4 **The literature of reinforced concrete. A review.** LS Moisseiff. 32-1.7p-TL-1|07

5 **Reinforced concrete AWBull & CSHill (2d edition) We have it.** (r) 26-1p-TL-1|07, (r) 33-0.2p-MJE-1|2, (r) 59-0.3c-S Am-1|26|07

6 **A puzzle in reinforced concrete at Tunis.** Ed 16-0.4p-MS-1|07

7 **Continuity stresses in reinforced concrete.** AHPerkins. 43-0.6c-EN-1|10|07

8 **Reinforced concrete beams, JLCampbell's criticism of** EPGoodrich. 35-0.5p-ERd-1|12|07

9 **Concerning the 10¢ ft. reinforced concrete roof girders in Los Angeles warehouse.** JLMonach. 45-0.6c-EN-1|10|07

1080 **Constrn joints in reinforced concrete work.** A Jordahl. +|112-0.3p-Erd-1|26|07

1 **The design of economic centers for a reinforced concrete arch, cost of same and cost of placing the steel and the concrete.** +30-2.7p, Ed 50-0.4c-EC-1|23|07

2 **The elastic arch; with special references to reinforced concrete** BRLeffler. Rev. by JFHayford. (r) 45-0.5c-EN-1|17|07

3 **Continuity and cantilever action in reinforced concrete beams.** EPGoodrich. 43-0.8c-EN-1|10|07

4 **Reinforced concrete approaches & column footings of a steel viaduct at Kansas City (Met St Ry Co.)** Kenneth Hartley. +|32-0.6p-EN-1|31|07

5 **Concrete—steel ties making something of a stir in the** r r world invented by HEPercival. 12-0.7c-SE-1|07

6 **Combination concrete brick and steel shop constrn; El Paso & South Western Ry.** *12-1.5p-EN-1|3|07

7 **A special reinforced concrete shop wall.** +|154-0.8p-EHd-1|26|07

8 **A reinforced concrete shop with steel roof trusses and crane girders.** WBTubesing. Bullock Wks. of Allis-Chalmers Co., Cincinnati, O. Gives details of construction. *+46-1.2p-EN-1|10|07

9 **An economical reinforced concrete shop constrn at Plainfield, N. J.** (Ransome Concrete Mchy. Co.) +|55-1.5p-EN-1|17|07

1090 **The Metropolitan garage; a reinforced concrete bldg now being erected in NY City.** AJordahl. *+45-1.2p-ERd-1|12|07

1 **Reinforced concrete. Notable structure of L & N terminal station, Atlanta, Ga.** *651-0.8p-MR-1|2|07

2 **A large reinforced concrete residence at Walkerville, Ont.** *+81-0.8p-ERd-1|26|07

3 **Ferro-concrete wharf at Hornchurch, Essex. Designed by Frank Sumner.** *+46-0.9p-Eg-1|11|07

4 **The design of reinforced concrete chimneys.** CB Duerger and ed. (Mathematical). +|51-0.7p-EN-1|2|07

5 **Novel reinforced concrete chimney.** (Dering Coal Co., Wis, Ill.) From Engg Rec. 42-0.4c-Eg-1|11|07

6 **Reinforced concrete standpipe. Description of one built at Waltham, Mass., in 1905.** *10-0.7p-MJE-1|2|07

7 **Reinforced concrete reservoir at Waltham, Mass.** BertramBrewer. *33-2p-ERd-1|12|07

8 **Reinforced concrete foundation for turbine in pit of Toledo Gas, El & Htg Co, O.** +|33-0.9p-C-1|15|07

9 (11f) **WOOD, TIMBER, PRESERVATION, etc.**

1100 **An msg of Ann Forestry Assn, Wash, DC.** 1|8|07.

What the forest service stands for. Abs GiffordPinchot, and other addresses. 76-0.8p-EN-1|17|07

1 **Future of the South Atlantic Forests.** JJWalker. Ed 1-0.3c, +|2.5p-MR-1|17|07

2 **Is it good economy to bury wood in concrete? What will** life of wood be under such conditions? *69-0.3p-EN-1|17|07

3 **Wood preserved by heat; method which has just been patented in France.** 23-0.2c-TL-1|07

4 **Treatic preservation; the life of timber.** Ed55-0.4p-SRJ-1|12|07

5 **Life of wooden poles.** Abs statistics Ger Postal & Teleg Dept. (From Elt Egr.) 4-0.3c-JEP-1|6|07

6 **Life of vulcanized timber. Result of tests made on 7 y** ties of Erie R R. 150-0.5p-RG-1|26|07

7 **Steaming of timber before treating with preservative.** Abs OctaveChanute & DavidAllerton, WPA. 138-0.7p-EN-1|31|07

8 **Development of treated wood block pavements in the U. S.** Abs PAKommer, BSCE. +|55-1p-ERd-1|12|07

9 **Timber tests by Forest Service show that wood is more elastic under impact than under gradually applied loads.** Ed 24-0.2c-Co-1|15|07

1110 **The hard woods of Western Australia.** Carefully conducted tests on various samples of timber by W Aus Govt. +|35-3p-Sc-1|11|07

1 (11i) **MEASUREMENT & INSTRUMENTS, etc.**

2 **Text book on strength of materials.** SEBiscoe & CL Hancock. (r) 99-0.2c-SAm-1|20|07

3 **The metric system.** The Decimal Assn. (r) 85-0.2c-EN-1|17|07

4 **Discussion on HRTowne's paper "Our present weights & measures & the metric system."** HHSuples, PA Halsey & others, ASME. +|24-50-ASME-12|06

5 **A property survey & its cost.** (Croton Falls Reservoir.) AWTidd. +|30-0.5p-EN-1|10|07

6 **Text book on geodesy & least squares.** CLCrandall. (r) 85-0.9p-EN-1|17|07

7 **Shrinkage of maps & errors of draftsmen's scales.** "A subscriber." 111-0.7c-EN-1|24|07

8 **Climatology of the U S.** AJHenry (r) 99-0.7c-EN-1|17|07

REPRODUCTION OF PRINTED CURRENT LITERATURE SHEETS
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(See 4c)

LIBRARY OF STONE & WEBSTER—CURRENT LITERATURE REFERENCES.

SEMI-WEEKLY SPECIAL 6/12/07 (10 cont'd)-(30) & outings #132-07

A(10 cont'd)-Experiments on proportioning concrete to secure maximum strength & density. Abs WBFuller & SEThompson. ASCE. ++699-3.2p-EN-6/30/07

B The Jacksonville (Fla) viaduct, a reinforced concrete structure 845 ft long. +605-2p-ERd-5/18/07

C Thermal conductivity of concrete. IHWoolson. (r) 732-8L-RG-6/31/07

D Concrete in the Northwest; now used almost exclusively in structures designed to carry heavy loads. CAPTurner. •285-10p-CA-5/07

E Concrete & reinforced concrete constrn from the fire protection view. Abs rep, NFPA. 618-1.8p-EN-6/6/07

F Concrete poles in use by Windsor, Essex & Lake Shore Road, Windsor, Ont. •982-0.6p-EW-5/11/07

G Reinforced concrete; its limitations. Abs Carl Gayler, EC. +248-4p-EC-6/5/07

H Corrosion of steel in reinforced cinder concrete. WHFox. +569-1p-EN-5/23/07

I Progress rep on the strength of structural timber. WKHatt, Cir #38, USDept Agric. Tables. 6X9, pp38. (gift) •077.H28, 3/04

J Instructions to agrs of timber tests. WKHatt. Cir #38, USDept of Agric. Diag. Tables. 6X9, pp55. (gift) •077.H28, 3/13/06

K Suppression of smoke nuisance; theoretical & structural requirements. Dis by WSE. •523-2p-MJE-5/22/07

L Methods & costs of el haulage on European canals. Abs HWMarchant. (US consul rep.) 240-1.4p-EC-5/29/07

M The effect of changes in canal cross sections upon the rate of flow. FWHanna. 630-1.2p-EN-6/6/07

N Waterway improvemt; importance of river & harbor develpmt. JAFox. 58-6p-1-5/07

O Wood pipe; method of constrn & use; continuous stave pipe & machine-banded pipe. Abs RBLloyd in 'Cal Jour of Tech.' •211-1.5p-TL-5/07

P Sensitiveness of inc gas burners to sound. (From Jour of Gas Ltg.) 838-1p-AG-5/30/07

Q Inc gas ltg; the inverted mantle burner; mantle service. Abs TJLitle, FSIES & dis. 283-1p-PA-5/15/07 (#127,N)

R(20)-Free wiring by central stations. JPMarron. 17-2p-SEy-5/07

S Economical conductor section. Kelvin's law. FOSamm. +1023-2p, Ed 1017-0.7p-EW-5/25/07

T The use of aluminum as an el'l conductor. HWBuck. +379-3.2p-JEP-6/18

U Underg'd conduit systems for pr work. Splicing chamber; protection for cables, etc. +236-3.8p-EA-5/07 (cont'd in #153)

VACATION LITERATURE

V A hand-book of historic Virginia. Jamestown Exposition. List of hotels, resorts, etc. Illus. Maps. 4X9, pp30. vN76h. & vE781

W Manual of summer resorts, containing list of hotels, boarding houses, excursion ticket rates, etc. NYNH&HRR. Illus. Map. 4X8, pp64.vN48s

X In the fish & game country of Northern New England. Descriptive & illus. B&MRR. 1907. Map. 6X8, pp80. vB65f, 1907

Y Lakes & streams of New England with some bits of land that charm. B&MRR. 1907. Illus. Maps. 5X9, pp44. vB651, 1907

Z New England vacation resorts. Descriptive. A list of hotels & boarding houses located on the B&MRR. 1907. Illus. 4X9, pp108. vB65v,1907

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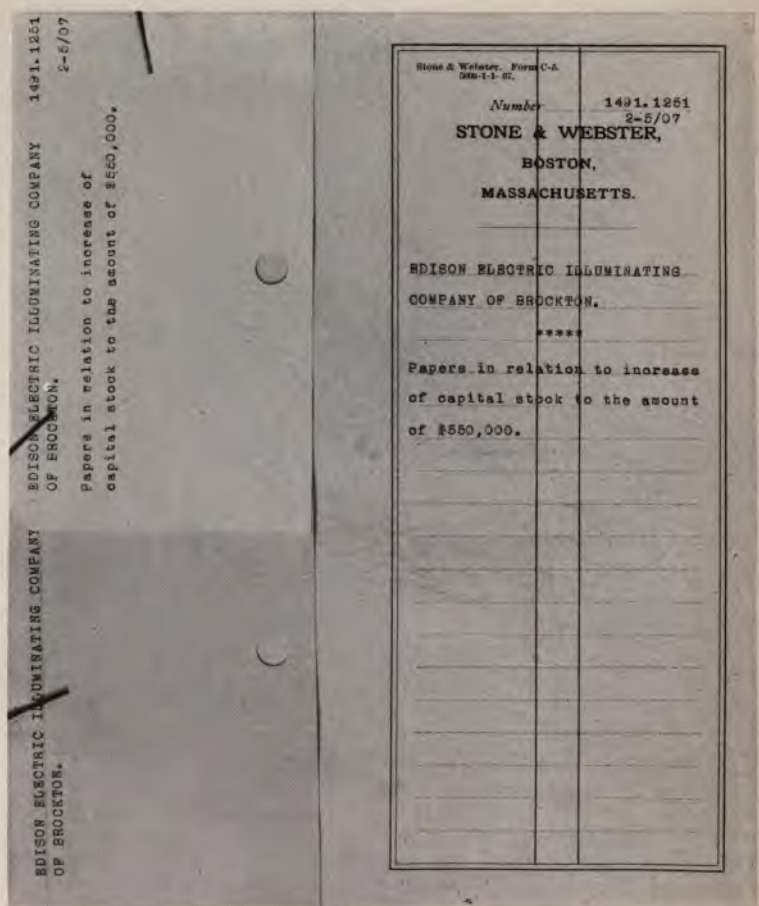

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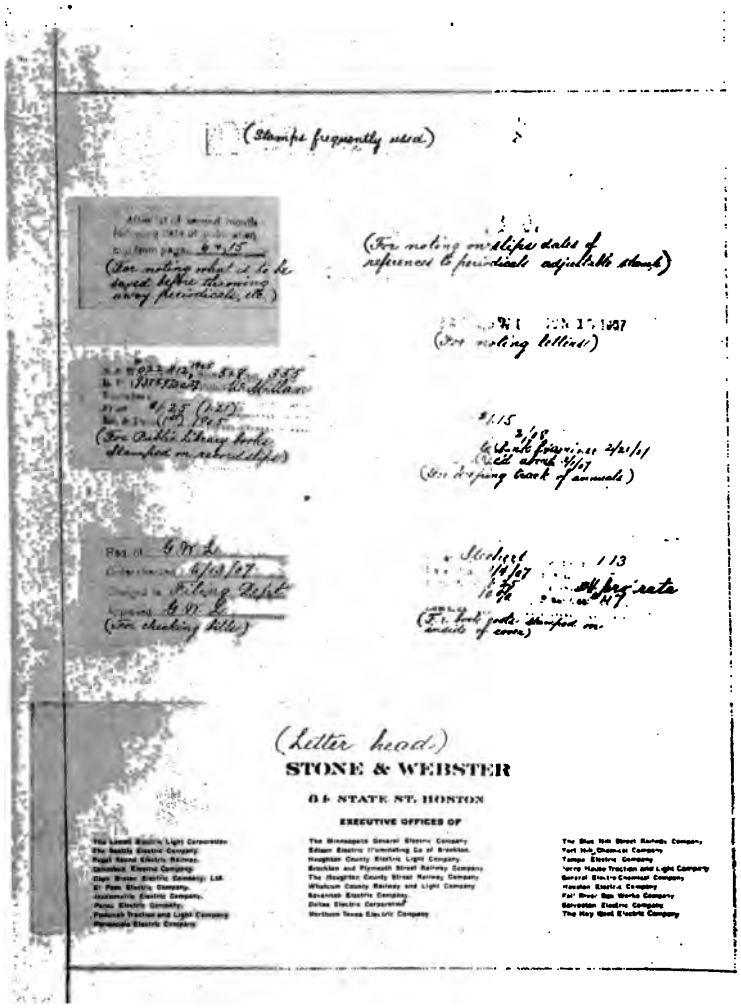

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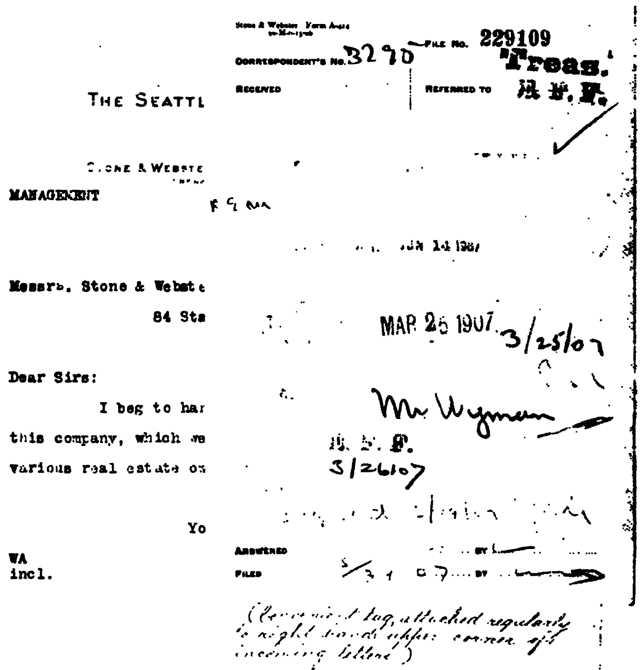

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